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The Quipu and Peruvian Civilization

By JOHN R. SWANTON



## THE QUIPU AND PERUVIAN CIVILIZATION

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As is well known, the ancient Peruvians used knotted cords as a substitute, or partial substitute, for written characters. Knotted cords were employed as mnemonic devices in other parts of both the New and the Old Worlds but were nowhere elaborated to the extent that we find in the old Incaic Empire. For scientific studies of the existing quipus we are indebted to L. Leland Locke ("The Ancient Quipu, or Peruvian Knot Record," American Museum of Natural History, 1923), and to a study by Erland Nordenskiöld (1925) entitled "The Secret of the Peruvian Quipus," in two parts in No. 6 of his Comparative Ethnographical Studies. Nordenskiöld promised further publications on this subject but his untimely death put an end to the undertaking.

Mr. Locke's conclusions regarding the quipu are:

[1] The quipu was used primarily for recording numbers; [2] The quipu was probably used as *memoria technica*, in memorizing historical items, poems, lists of kings, etc.; [3] The quipu was not adapted to calculation; [4] A scheme of roughly suggestive colors was probably in use; [5] The evidence is intrinsically against the supposition that the quipu was a conventional scheme of writing. [And he adds] In conclusion, *the evidence is that all of the authentic quipu examined are numerical in nature*. It may be that through the irony of fate no specimens of genuine historical quipu, if they existed, have been preserved. It is recorded that great quantities of quipu were destroyed by the Spanish invaders.

Locke and Nordenskiöld both depend mainly upon Garcilaso de la Vega for historical information regarding the use of this device, and Locke is probably influenced as to its limitations by Garcilaso's statements, the following in particular:

The Quipu-camayus noted, by means of the knots, all of the tribute that was given to the Inca every year, specifying each household and its peculiar mode of service. They also recorded the number of men who went to the wars, those who died in them, those who were born and those who died in each month. In fine they recorded everything relating to numbers by means of the knots, even putting down the battles that were fought, the embassies that had been sent to the Inca, and the number of speeches and arguments that were used by the envoys. But neither the words nor the reasoning nor any historical event could be expressed by the knots. For there was no means of conveying the words that were spoken, the knots expressing numbers only and not words. To remedy

this defect they had signs by which they conveyed an idea of historical events and of reasonings and of speeches made in peace or war. These speeches were preserved by the Indian Quipu-camayus in their memories by means of short sentences giving the general meaning, which were committed to memory and taught to their successors, so that they were handed down from father to son. This was especially practised in the particular village or province where the event in question had taken place, and there it was remembered more than in any other place, because the natives valued their traditions. They had another way of preserving the memory of historical events and of embassies sent to the Incas; the Amautas, who were learned men, took care to put them into the form of brief narratives, or short fables, which were told to children and youths, and to the common people; so that by passing from one to another, they might be preserved in the memories of all. They also recounted their histories in the form of allegories, as we have related of some, and shall hereafter relate of others. Then the Haravicas, who were their poets, composed short pithy verses, in which the historical event was condensed. Thus they cast into traditional verse all that the knots were unable to record; and these verses were sung at their triumphs and festivals. They likewise recited tales to the Incas when the knights were armed and thus they preserved the memory of past events. But as experience has shown, all these were perishable expedients, for it is letters which preserve the memory of events. As the Incas had not attained to a knowledge of them . . . they invented such substitutes as they were able.

A system of knots of this kind does, of course, lend itself very readily to the expression of numbers and the method of recording these is made very clear by Locke and Nordenskiöld.

But it is evident that it is of little utility to have the exact number of things unless we know what things. Probably quipus were used by individuals for their own record, the objects, animals, or persons enumerated being lodged in the memory of the owner of the quipu. It would have been strange, however, if no mnemonic devices had been added to remind the user of the quipu of the specific application of the record. There would be occasions, particularly when the owner of the quipu was a public officer, when it would have been of importance to have such marks of identification in his quipu, and we have the best of evidence that these were made. These marks of identification were often peculiar colors. Garcilaso says:

The thing to which a string referred was understood by its color, for instance a yellow string referred to gold, a white to silver, and a red one to soldiers.

Bastian, on the authority of Calancha, adds to these black, signifying "time"; green, "killed in war"; carmine, "the Inca"; brown, "the curaca"; gray, "provinces"; variegated, "government"; blue, yellow, and white, "religion." De Nadaillac suggests some others. Color was not, however, the only classificatory device. Garcilaso continues thus:

Things which had no color were arranged according to their importance, beginning with those of most consequence, and proceeding in order to the most insignificant; each under its generic head, such as the different kinds of grain

under corn, and the pulses in the same way. We will place the cereals and pulses of Spain in their order, as an example. First would come wheat, next barley, next beans, next millet. In the same way, when they recorded the quantity of arms. First they placed those that were considered the most noble, such as lances, next darts, next bows and arrows, then shields, then axes, and then slings. In enumerating the vassals, they first gave account of the natives of each village, and next of those of the whole province combined. On the first string they put only men of sixty and upwards, in the second those of fifty, in the third those of forty, and so on down to babies at the breast. The women were counted in the same order.

Under some of these classes were subclasses:

Some of these strings had other finer ones of the same color attached to them, to serve as supplements or exceptions to the chief record. Thus, if the main strand of men of a certain age had reference to married people, the supplementary strand gave the number of widowers of the same age in that year. For these accounts were made up annually and only related to one year.

From Garcilaso's testimony it appears that he was particularly familiar with Indian accounts and that is perhaps why he lays so much stress on the fact that the knots expressed numbers only and not words. Of course, there is no probability that anything in the nature of a phonetic system was represented in the quipus. On the other hand, Garcilaso himself supplies pretty clear evidence that the quipu were used to indicate something more than mere numbers.

When an event is indicated by means of a picture, there is little or no tax upon the memory to interpret it, but when pictures or conventional signs have become used to recall something indirectly to the memory, as when a pictograph indicates a syllable or perhaps an entire word which the pictograph in some way suggests, it is merely a mnemonic and a knot or a notch cut in a stick or some other device might be substituted. The only advantage which the pictograph has is in the fact that the picture may recall the thing to mind, but when this is shifted in significance or conventionalized beyond recognition, it is on the same plane as the knot. If a simple knot signifies "one" and red "a warrior," then a simple red knot may be the mnemonic for "one warrior" just as truly as any pictographic symbol. And so one white knot might denote a single piece of silver, one yellow knot a single piece of gold, and so on. A supplementary strand might inform us whether the soldier were a widower or not and if this were green it might tell us that he had been killed. Just how many variations of the knots were possible I do not know, but Garcilaso himself suggests several such, and furthermore, in spite of what he has said regarding the limitations of the quipus to numbers, he makes statements about them elsewhere which seem not altogether in harmony with that assertion. I quote again:

The ordinary judges give a monthly account of the sentences they had pronounced to their superiors, and these to others, there being several grades of

judges, according to the importance of the cases. The way of making these reports to the Ynca, or to those of his Supreme Council, was by means of knots, made on cords of various colors, by which means the signification was made out, as by letters. The knots of such and such colors denoted that such and such crimes had been punished, and small threads of various colors attached to the thicker cords signified the punishment that had been inflicted, and in this way they supplied the want of letters.

If a murderer had been executed by strangling, the fact might thus have been indicated by a red knot having a small thread of some other color hanging from it to indicate death by garroting. The knot would then have become a mnemonic and a form of language. Garcilaso again indicates something more than mere numbers in the following passage:

The Quipu-camayus were referred to by the Curacas, and chiefs of the provinces to tell the historical events relating to their ancestors which they desired to know, or any other notable circumstance which had happened in their provinces. For these officers, like scribes and historians, kept the registers or Quipus handed down by their predecessors, and were bound by their office to study them constantly by means of the signs and indications in the knots, so as to preserve the memory of the traditions respecting famous past events. It was their duty to narrate these events when called upon to do so; and for this service they were exempted from other tribute. Thus the meaning of the knots was never allowed to slip from their heads. By the same means they gave an account of the laws, ordinances, rites, and ceremonies. From the color of the thread or the number in the knot they could tell the law that prohibited such and such an offense, and the punishment to be inflicted on the transgressor of it. They could set forth the sacrifices and ceremonies that should be performed on such and such festivals; and could declare the rule or ordinance in favor of the widows or the poor: and to give an account in short, of all things preserved by tradition in their memories. Thus each thread and knot brought to the mind that which it was arranged that it should suggest.

We do not know over how much territory the quipus had been standardized, but the above statements show that they were something more than mere records of numbers.

The following quotations may also be adduced, extracted from Locke's collection of references:

Polo de Ondegardo:

They preserve the memory of these Lords by their quipus, but if we judge by the time that each is said to have lived, the historical period cannot be placed further back than four hundred years at the earliest. . . . They have records in their quipus of the fish having sometimes been brought from Tumbez, a distance of more than three hundred leagues.

Fernandez Montesinos gives a list of kings, substantiated from other sources "which he claimed to have acquired from quipus through learned natives."

Cristoval de Molina:

They call them quipus, and they are able to understand so much by their means, that they can give an account of all the events that have happened in their land for more than five hundred years.

**Don Pedro Sarmiento de Gamboa :**

It is a thing to be admired to see what details may be recorded on these cords, for which there are masters like our writing masters.

**José de Acosta :** After seeming to minimize the value of the quipu, he says:

According to the varieties of business, as warres, pollicie, tributes, ceremonies and landes, there are sundry Quippos or braunches, in every one of the which there were so many knottes, little and great, and strings tied vnto them, some red, some greene, some blew, some white; and finally, such diversitie, that even as wee derive an infinite number of woordes from the foure and twenty letters, applying them in diverse sortes, so doe they draw innumerable woordes from their knottes and diversitie of colours. Which thing they doe in such a manner that if at this day in Peru, any Commissary come at the end of two or three years to take information vpon the life of any officer, the Indians come with their small reckonings verified, saying, that in such a village they have given him so many egges which he hath not payed for, in such a house a henne, in another two burdens of grasse for his horse, and that he hath paid but so much mony and remaineth debtor so much. The prooffe being presently made with these numbers of knottes and handfulls of cords, it remaines for a certain testimony and register.

**Fr. Jeronimo Roman y Zamora :**

As the things which they wished to count differed they made the knots larger or smaller and with differences of colors in the manner so that for one thing they had a colored (red) knot and for another green or yellow, and so on; but that which to me was most thrilling is that by the same cords and knots they counted the succession of the times and how long reigned each king and if he was good or bad, if he was brave or cowardly, all, in fine, that which could be taken out of the books was taken out of that.

**Antonio de Herrera Tordesillas :**

With these [quipus] they found a way to preserve all knowledge of their history, their laws and ceremonies, as well as their business affairs, with great exactness.

**Fray Antonio de la Calancha :** Locke says of him,

Calancha refers to the quipu many times in his voluminous work. It is significant that he usually connects the quipu with with some such word as memorials, traditions, or histories.

It seems evident from these quotations that most Spaniards who studied the quipus or heard accounts of them thought that they expressed qualities as well as quantities and that historical, legal, and political matters were recorded by means of them. This is confirmed also by the body of Incaic history preserved by Spanish writers. The narratives agree so closely that it is evident we are dealing with some-

thing more than memorized traditions and the only means of recording such events widely used was the quipu.

The great body of quipus certainly deal with numbers, and this fact has been used to minimize the idea that they carried narratives of any sort. It must be remembered, however, that all of the quipus we now have were obtained from graves, and if Nordenskiöld is right in his contention that they "contained numbers that were magical in the eyes of the Indians, and that *the numbers indicate days* [italics his]," the absence of narrative quipus from our collections is accounted for. But if, as he goes on to assert, "these quipus are grave calendars" and if "it is highly probable that, like the Maya codices, they are to a great extent nothing but books of prophecy and divination," like the Maya codices they may contain something more than numbers. Apart from these grave quipus, however, it is inherently probable that the greater number of them were either individually owned and used in recording the extent of the owner's property and his business transactions, or else were possessed by official enumerators of government properties and troops, including tribute. The quipu is without doubt better adapted to the preservation of tallies of this kind than to literary expression. But it is natural to suppose that legal, and particularly historical, records represented the last stages of evolution in this direction, that such quipus were fewer in numbers and that, being in the public repositories, they were heavily represented among those thousands known to have been destroyed by the Spaniards.

Beyond all this, what we know of Peruvian culture furnishes an inherent probability that some device for recording cultural and historical facts would have attained considerable development. It is generally held that the higher cultures of the Old and the New Worlds evolved independently of each other. It is also probable that several of the higher cultures within each grand division arose in comparative isolation. At the same time there is evidence that certain cultural elements were shared in common or that they were exchanged during the evolution of the cultures in question. Thus the cultures of Babylonia and Egypt were not without certain early exchanges. Crete took something from both, and we know that there were early and intimate relations between Babylonia and the Indus Valley. And finally, the cultural influences at work in old China are known to have emanated from the west. It is to be suspected that when the Iranian Plateau has been fully explored the connection between the higher civilizations of the Old World will become much more apparent.

In the New World two apical cultures have long been recognized, and discussions regarding the relations between these have been almost as heated as discussions of the relations between Babylonia

and Egypt. In certain particulars the culture of the Maya Indians apparently went beyond anything on the South American continent, particularly in their system of writing, their calendar, and their architecture.

But on a great many other counts Andean civilization shows decided superiority—in its arts, including ceramics, textiles, metallurgy, and masonry, in the ability shown in linking together numbers of unrelated tribes into an empire without the same terroristic practices as those resorted to in North America, and apparently also in the greater purity of its religious beliefs. But particularly they excelled in the economic basis upon which all great civilizations must rest. They had established terraced farms everywhere which were intensively cultivated and which were fertilized, whereas the "milpa" culture of the Maya never seems to have gotten beyond a more refined type of clearing and cropping, and removal to other land when the farm became exhausted. To Peru, or the immediate neighborhood of Peru, the entire world owes several varieties of beans, squashes and pumpkins, white and sweetpotatoes, tomatoes, and perhaps the pineapple and corn. The same region gave to medicine quinine and cocaine. It is also significant that only Andean civilization could show any native American domesticated animals of economic value. These include the llama and the alpaca. We must not assume that one limited area gave birth to all of these products. But in Peru, from whatever sources they were derived, there came to be gathered a greater variety of cultivated plants, and we may add domesticated animals, than was to be found in Middle America or anywhere else in the New World. Upon the whole, it seems to the writer that Andean civilization represented the higher of the two American peaks of culture. Probably it would simplify the matter too much but there is a temptation to dramatize the world cultural situation by calling the Old World culture Iranian and the New World culture Andean.

Over against the contributions of the Old World to our civilization we should, therefore, look for the maximum contribution and maximum originality in its contributions to the Andean region, and in most particulars there we seem to find them. The one striking exception, at first sight, seems to be in the graphic representation of ideas. In the Old World we have in Egypt the hieroglyphic system, in Babylonia the cuneiform system, in Crete a series of characters which has not yet been deciphered, in China an independent evolution of characters from pictographs, and apparently another in the valley of the Indus.

In the New World, however, it is only Middle America—indicated above as in most respects the lower American culture—which supplies us with pictographs and hieroglyphs which seem to have evolved

to the threshold of a phonetic system. In Peru there was nothing of the sort although tradition spoke of an attempt at something similar in earlier times. What we do have, however, is evolution toward an entirely novel method of expression, having the same originality in its field as were contributions of potatoes, beans, and corn in the economic field. It is true that incipient quipus had been used elsewhere, but only in Peru was an elaborate system of record and communication based upon them. Besides the arguments given above for supposing that this device was more highly developed and a much more perfect medium of expression than some recent students have thought, I therefore add the fact that something of the kind is called for by the accomplishments in other fields of the people who employed it. It is demanded by the very real splendor of the Andean civilization as a whole.

I do not pretend that knotty cords would be successful rivals in the long run to records made on papyrus, rice paper, maguey fiber or even clay tablets, but they must have had an advantage over stone when that was used for inscriptions, and perhaps an ethnologist who became an expert in manipulating knotted strings might find unexpected possibilities in such a form of expression.

